



## IE 341 Engineering Economic Analysis

University Credit: (3 0 3) ECTS: 5

2020-2021 Fall - Syllabus

**Instructor:** Alp Ertem

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### **Catalog Description:**

Foundations of engineering economy; engineering economy factors; nominal and effective interest rates; present and future worth analysis; annual worth analysis; rate of return analysis; benefit/cost analysis and public sector economics; project financing; replacement and retention decisions; independent projects; breakeven analysis, effects of inflation.

### **Text Book:**

Leland Blank and Anthony Tarquin, Engineering Economy, 8<sup>th</sup> Edition, McGraw-Hill, 2017.

### **Reference Books:**

John A. White, Kenneth E. Case, David B. Pratt, Principles of Engineering Economic Analysis, Wiley, 2010.

Chan S. Park, Contemporary Engineering Economics, 5th Edition, Pearson, 2011.

### **Course Outline:**

1. Foundations of Engineering Economy
2. Factors: How Time and Interest Affect Money
3. Combining Factors
4. Nominal and Effective Interest Rates
5. Present worth Analysis
6. Annual worth Analysis
7. Rate of Return Analysis: Single Alternative
8. Rate of Return Analysis: Multiple Alternatives
9. Benefit/Cost Analysis and Public Sector Economics
10. Project Financing
11. Replacement and Retention Decisions
12. Independent Projects with Budget Limitation
13. Breakeven and Payback Analysis
14. Effects of Inflation

### **Class meeting hours:**

**Section 1:** Wednesday (09:20-12:10) via Zoom, meeting ID and password will be provided later

**Section 2:** Thursday (09:20-12:10) via Zoom, meeting ID and password will be provided later

### **Grading:**

% 25 Midterm Exam

% 40 Final Exam

% 25 Five Homework Assignments (through Connect platform)

% 10 Class participation

**Academic Integrity:**

All students admitted to Çankaya University are expected to act honestly and ethically. Therefore, any form of dishonesty will not be tolerated. Every student should declare his/her understanding and belief in the Honor Code stated by the department for the examinations and assignments.

**Make-up Exams:**

- If a student misses a midterm exam or a final exam and has a valid excuse for his/her absence, a make-up exam will be given. A make-up exam may have a different format and may contain different type of questions than the regular exam.

**Attendance:**

- Minimum required attendance to lectures is 45%. However, it is strongly recommended to attend all the lecture hours. There is no recitation hour for this course
- Attendance will be taken every lecture hour from participants list in Zoom and/or Moodle activities.
- Class participation will be measured by your completion of in-class questions during online lectures.

**Conditions that may lead to the letter grade “NA”:**

- Not attending the Midterm Exam and the Final Exam.
- Having less than 45% attendance to lectures.

**Course website:**

- Communication will be made through course page at <http://webonline.cankaya.edu.tr>
- Announcements, lecture notes, grades, attendance, and other information will be uploaded to the course page.
- Every student should check the course page regularly. They are also responsible for printing the course material (lecture notes, exercises, etc.) from the course web page when needed.

**Exams, Homework Assignments and Class Participation:**

- There will be one midterm exam, one final exam, 5 homework assignments, and class participation in this course.
- In exams and online lectures, the students will need a calculator.
- 5% of class participation grade will be gained from correct answers in weekly quizzes.
- 5% of class participation grade will be given to all students who have attendance rate greater than 70% of all the lectures.
- Homework assignments will be managed through McGraw-Hill’s Connect platform. You will need to register at <https://connect.mheducation.com/class/ie341-fall-2020>. Detailed explanation on how to obtain a course code will be given in class.